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Wilfried Breuer

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BAKER BOTTS L.L.P.

PATENT DEPARTMENT

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AUSTIN, TX 78701-4039

EXAMINER

WILLOUGHBY, TERRENCE RONIQUE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/597,097	Applicant(s) BREUER ET AL.	
	Examiner TERRENCE R. WILLOUGHBY	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 July 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's amendment filed September 23, 2008 has been entered. Accordingly new Claim 18 was added. Claims 5-6, 11-13 and 16-17 has been amended. Therefore, Claims 1-18 remain currently pending in this application. It also includes remarks/arguments.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims 6, 12 and 17. Therefore, **the means of supports and is designed to bear components** must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

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Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 1 is objected to because of the following informalities: Claim 1 recites "the reception unit has at least one power semiconductor component, which can **moved over**, by means of the trigger light....". The terminology **moved over** is not acceptable claim language. The power semiconductor component is not a mechanical switch that can **moved over** from one position to another as recited in the claim.

Appropriate correction is required.

4. Claims 2, 3, 8, 9 and 14 are objected to because of the following informalities: Claims 2, 3, 8, 9 and 14 recites "the power semiconductor components, which the examiner believes should be changed to "the power semiconductor component".

Appropriate correction is required.

5. Claim 3, 9 and 14 are objected to because of the following informalities: The claims recites "a capacitor which can be **bridged** by means of the power semiconductor components, which is indefinite because the specification does not provide the examiner with a clear meaning of the terminology used in the claims.

Appropriate correction is required.

6. Claim 5, 11 and 16 are objected to because of the following informalities: The claims recites "the capacitor which can be **bridged being** connected in parallel,

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which is indefinite because the specification does not provide the examiner with a clear meaning of the terminology used in the claims.

Appropriate correction is required.

7. Claim 13, is objected to because of the following informalities: Claim has not been provided with proper status identifier, such as (**Currently Amended**). Claim 13 was objected to in the Office Action Dated June 27, 2008 for having double spaces in line 10 of the original claim.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1, 3, 4, 6, 7, 9, 10 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Peterson (US 4,121,270).

10. Regarding claims 1 and 7, Peterson discloses in (Fig. 2), a surge protector comprising:

A spark gap (24), which has mutually opposite electrodes,

A trigger circuit (26) for triggering the spark gap and a light source (50), which is connected to a protective device (22), at ground potential for generating a trigger light (col. 2, ll. 64 thru col. 3, ll. 1-3; col. 5, ll. 19-24), which can be supplied to a reception unit (55) of the trigger circuit (26) by means of at least one optical waveguide (50), the

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spark gap (24) and the trigger circuit (26) being at a high-voltage potential (col. 5, ll. 29-33), wherein

the reception unit (55) has at least one power semiconductor component, which can be moved over, by means of the trigger light (50), from an off position, in which a current flow via the power semiconductor component is interrupted, to an on position, in which a current flow via the power semiconductor component is made possible (col. 5, ll. 37-58).

11. Regarding claims 3 and 9, Peterson discloses in (Fig. 3), a surge protector according to claims 1 and 7, wherein the trigger circuit (26) has a capacitive voltage divider (46A, 46B), which can be bridged by means of the power semiconductor components (55A, 55B).

12. Regarding claims 4 and 10, Peterson discloses in (Fig. 3), a surge protector according to claims 1 and 7, wherein the trigger circuit (26) is inherently connected to a trigger electrode, whose distance from a first electrode of the spark gap (24) is less than the distance between the first electrode and a second electrode opposite it of the spark gap (24), it being possible for the electrical potential of the second electrode to be applied to the trigger electrode by means of the trigger circuit (26).

13. Regarding claims 6 and 12, Peterson discloses in (Fig. 2), a surge protector according to claims 1 and 7, wherein the spark gap (24) and the trigger circuit (26) are arranged on a platform which is supported in a insulated manner and is designed to

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bear components which are provided for the purpose of improving a power transmission in an energy distribution system (col. 5, ll. 18-27).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 2, 8, 13, 14, 15, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peterson (US 4,121,270) in view of Kaneda (JP 07-245387).

16. Regarding claims 2 and 8, Peterson discloses a surge protector according to claims 1 and 7, except for wherein the power semiconductor components are in the form of thyristors which are connected in opposition and can be triggered optically.

Kaneda discloses in (Fig. 1), a driving method of light activated thyristor comprising power semiconductor components in the form of thyristors (1, 2) which are connected in opposition and can be triggered optically (3, 4, 5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the teachings of Kaneda, comprising the thyristors connected in opposition and triggered optically with the force firing of the protective bypass device as taught by Peterson, in order to provide a bidirectional current path to fire the spark gaps.

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17. Regarding claim 13, Peterson in view of Kaneda discloses all the limitations recited above in claims 1 and 2.

18. Regarding claim 14, Peterson in view of Kaneda discloses all the limitations recited above in claim 3.

19. Regarding claim 15, Peterson in view of Kaneda discloses all the limitations recited above in claim 4.

20. Regarding claim 17, Peterson in view of Kaneda discloses all the limitations recited above in claim 6.

21. Regarding claim 18, Peterson in view of Kaneda discloses all the limitations recited above in claims 1 and 2.

22.

23. Claims 5, 11 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peterson (US 4,121,270) in view of The Applicant's Acknowledged Prior Art ("AAPA").

24. Regarding claims 5, 11, and 16 Peterson discloses in (Fig. 3), a surge protector according to claims 3, 9 and 14, except for the capacitor which can be connected in parallel with a pair of mutually opposite electrodes.

The AAPA discloses in (Fig. 1), that it is well known in the art to provide a voltage divider, which has a capacitor (7, 8) connected in parallel with a pair of mutually opposite electrodes (3) of the spark gap (2). Page 2, paragraph [0004].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have to utilize the capacitor connected in parallel with a pair of

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mutually opposite electrodes as taught by the AAPA in the circuit protection device as taught by Peterson, in order to actively control the triggering of the spark gap.

25. Claims 1, 3-7, 9-12 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over The Applicant Acknowledged Prior Art ("AAPA") in view of Matsumura et al. (US 4,536,816).

26. Regarding claims 1 and 7, The AAPA in (Fig. 1) discloses a surge protector (1) comprising a spark gap (2), which has mutually opposite electrodes (3), a trigger circuit (5) comprising a trigger spark gap (9) for triggering the spark gap (2) and a light source (14), which is connected to a protective device (13), at ground potential for generating a trigger light, which can be supplied to a reception unit (11) of the trigger circuit (5) by means of at least one optical waveguide (15), the spark gap (2) and the trigger circuit (5) being at a high-voltage potential.

The AAPA does not disclose the reception unit (11) of the trigger circuit (5) having at least one power semiconductor component, which can be moved over, by means of the trigger light (14), from an off position in which a current flow via the power semiconductor component is interrupted, to an on position, in which a current flow via the power semiconductor component is made.

Matsumura et al. in (Fig. 7) discloses a reception unit having at least one power semiconductor component (13), which can be moved over, by means of a trigger light (6, 6a), from an off position in which a current flow via the power semiconductor

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component (13) is interrupted, to an position, in which a current flow via the power semiconductor component (13) is made (col. 6, ll.35-37).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute one non-linear device, such as spark gap as taught by the AAPA with a thyristor device as taught by Matsumura et al. because both elements function in a similar manner. Also, the use of a solid state switch, such as a thyristor operates longer than a spark gap which may exhibit electrode erosion and also are produced in large volume making them less expensive than spark gaps which are individually crafted in small quantities.

27. Regarding claims 3 and 9, The AAPA in view of Matsumura et al. discloses the surge protector according to claims 1 and 7, wherein the trigger circuit (AAPA, Fig. 1, (5)) has a capacitive voltage divider (AAPA, Fig. 1, (7, 8)), which has a capacitor (AAPA, Fig. 1, (8)) which would be bridged by means of the power semiconductor component (Matsumura et al., Fig. 7, (13)).

28. Regarding claims 4 and 10, The AAPA in view of Matsumura et al. discloses the surge protector according to claims 1 and 7, wherein the trigger circuit (AAPA, Fig. 1, (5)) is connected to a trigger electrode(AAPA, Fig. 1, (6)), whose distance from a first electrode (AAPA, Fig. 1, (3)) of the spark gap (AAPA, Fig. 1, (2)) is less than the distance between the first electrode (AAPA, Fig. 1, (3)) and a second electrode (AAPA, Fig. 1, (3)) opposite it, it being possible for the electrical potential of the second electrode (AAPA, Fig. 1, (3)) to be applied to the trigger electrode (AAPA, Fig. 1, (6)) by means of the trigger circuit (AAPA, Fig. 1, (5)). See AAPA, page 2, paragraph [0004].

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29. Regarding claims 5 and 11, The AAPA in view of Matsumura et al. discloses the surge protector according to claims 1 and 7, wherein the spark gap (AAPA, Fig. 1, (2)) has at least two pairs of mutually opposite electrodes (AAPA, Fig. 1, (3)), which are arranged in series circuit with respect to one another, the capacitor (AAPA, Fig. 1, (8)) which can be bridged being connected in parallel with a pair of mutually opposite electrodes (AAPA, Fig. 1, (3)). See AAPA, page 2, paragraph [0004].

30. Regarding claims 6 and 12, The AAPA in view of Matsumura et al. discloses the surge protector according to claims 1 and 7, wherein the spark gap (AAPA, Fig. 1, (2)) and the trigger circuit (AAPA, Fig. 1, (5)) are arranged on a platform (AAPA, Fig. 1, (4)) which is supported in a insulated manner by means of supports and is designed to bear components which are provided for the purpose of improving the power transmission in an energy distribution system. AAPA, page 1-2, paragraphs [0003] and [0004].

31. Regarding claim 14, The AAPA in view of Matsumura et al. discloses all the limitation recited above in claim 3.

32. Regarding claim 15, The AAPA in view of Matsumura et al. discloses all the limitation recited above in claim 4.

33. Regarding claim 16, The AAPA in view of Matsumura et al. discloses all the limitation recited above in claim 5.

34. Regarding claim 17, The AAPA in view of Matsumura et al. discloses all the limitation recited above in claim 6.

Response to Arguments

35. Applicant's arguments filed September 23, 2008 have been fully considered but they are not persuasive.

36. In response to applicant's argument that Matsumura does not teach to provide a power semiconductor component for use in a high voltage surge protector, is a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

37. Applicant's arguments with respect to claims 1, 2, 8, 13, 14, 15, 17 and 18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

38. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Stenstrom et al. (US 4,860,156) discloses an over-voltage protection circuit comprising a triggering circuit for a spark gap (abstract). Further, the references discloses that it is well known to one of ordinary skill in the art that is possible to substitute a spark gap as taught by the AAPA with a known solid-state switch, such as a thyristor. See Fig. 4, spark gap (G7), replaced by a thyristor (Fig. 6, T) and also col. 3, ll. 20-27 and col. 3, ll. 64 thru col. 4, ll. 1-2).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to TERRENCE R. WILLOUGHBY whose telephone number is (571)272-2725. The examiner can normally be reached on 8-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on 571-272-1869. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Terrence R Willoughby/
Examiner, Art Unit 2836
4/7/09

/Fritz M Fleming/
Primary Examiner, Art Unit 2836